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Legislative Bulletin…….……August 2, 2007

Contents:

H.R. 2272 — America COMPETES Act—CONFERENCE REPORT

Summary of the Bills Under Consideration Today:

Total Number of New Government Programs: **at least 40**

Total Cost of Discretionary Authorizations: Unknown. However the bill authorizes $43.3 billion over three years

Effect on Revenue: $0

Total Change in Mandatory Spending: Unknown

Total New State & Local Government Mandates: Unknown

Total New Private Sector Mandates: Unknown

H.R. 2272— 21st Century Competitiveness Act of 2007
CONFERENCE REPORT *(Gordon, D-TN)*

Order of Business: The bill is likely to be considered on Thursday, August 2, 2007, subject to a closed rule, providing for one hour of debate, equally divided.

Note: The House considered and passed H.R. 2272 on May 21, 2007, by a voice vote.

Summary: H.R. 2272 authorizes $43.4 billion in FY 2008 in funding for several different agencies, including the National Science Foundation (NSF), the National Institute of Science and Technology (NIST), and the Departments of Education,

Commerce, and Energy. In addition, the bill creates at least 40 new federal programs, most of which are related to the fields of science, technology, engineering, and mathematics (STEM). H.R. 2272 also requires at least 35 studies or reports to be conducted by various agencies and entities.

The highlights of the Conference Report are as follows:

- Amends the Robert Noyce Teacher Scholarship Program in current law, operated by the National Science Foundation (NSF), which is a competitive grant program to institutes of higher education. H.R. 2272 amends the program to provide assistance to IHEs that ensure teachers from both the math and science and the education departments work together to recruit students to pursue degrees in science, technology, engineering, and math (STEM), as well as to become certified K-12 teachers. The bill also increases the scholarships provided to students through this program from $7,500 to $10,000. Scholarship recipients would be required to teach up to six years (based on number of years receiving the scholarship), and the teaching requirement would be reduced by one for those who teach in high-need schools. If a student chose not to fulfill his or her teaching requirement, the scholarship would be converted to a loan, which must be repaid by the individual.

- Requires NSF, through the STEM Talent Expansion program, **to create a new program** for the creation of centers to develop undergraduate curriculum, teaching methods for undergraduate courses, and methods to better train professors and teaching assistants who teach undergraduate courses to increase the number of students completing these courses in STEM fields.

- Requires NSF to **create a new research pilot program** (the Partnerships for Access to Laboratory Science), which will fund partnerships between IHEs, businesses, and high-need public schools, to improve laboratories as part of a comprehensive program to enhance the quality of STEM instruction at the high school level. The federal share of the cost of activities carried out using a grant from this program is limited to 50 percent. **Authorizes $5 million in FY 2008, and such sums as necessary for the following three years for this program.**

- Requires the Department of Energy (DoE) to **create a new federal grant program** that would provide assistance to the same individuals as provided for in the NSF program. These grants would also be at least $80,000 annually—at least $400,000 over five years.

- Requires the Office of Science and Technology Policy to create a National Coordination Office for Research Infrastructure, and outlines the duties of the new office.

- Requires the National Institute of Standards and Technology (NIST) to submit a report to Congress on efforts to recruit and retain young scientists and engineers at NIST laboratories.

- Expresses the following sense of Congress regarding NASA funding levels purpose:

    - "a balanced science program authorized by section 101(d) of the National Aeronautics and Space Administration Authorization Act of 2005 (42 U.S.C. 16611) shall be an element of the contribution by the National Aeronautics and Space Administration to such interagency programs; and

    - "a robust National Aeronautics and Space Administration, funded at the levels authorized for fiscal years 2007 and 2008 under sections 202 and 203 of the National Aeronautics and Space Administration Authorization Act of 2005 (42 U.S.C. 16631 and 16632) … would enable a fair balance among science, aeronautics, education, exploration, and human space flight programs."

    - The NASA authorized funding levels mentioned above are as follows:
      FY 2007- $17.9 billion; and
      FY 2008- $18.7 billion.

    - NASA's request for FY 2007 was $16.8 billion.

- **Authorizes $22 billion** over three years (FY08-FY10) for the National Science Foundation.

- **Establishes the Major Research Instrumentation program**, which would award grants to institutions of higher education (IHE) for acquiring, operating and maintaining instruments and equipment. The minimum amount of an award under the program would be $100,000, but not to exceed $4 million, unless the total amount appropriated for the program in a fiscal year exceeds $125 million, in which case, the maximum award could be $6 million. IHEs would be required to provide at least 30 percent of the cost from private or non-federal sources, except in certain circumstances in which this cost-sharing requirement is waived.

- Directs NSF to continue to carry out the Centers for Research on Learning and Education Improvement. Expands eligibility for centers under this program to include certain nonprofit organizations.

- Directs the National Science Board to evaluate the role of NSF in supporting interdisciplinary research and the effectiveness of NSF's efforts in providing information to the scientific community about opportunities for funding of interdisciplinary research proposals.

- Requires NSF **to establish a new pilot program** to award grants to individuals to "assist them in improving research proposal that were previously submitted to NSF, but not selected for funding." Grants would be made to individual who have not previously received funding as the principal investigator of a research grant from NSE and have submitted a proposal to NSF that was rated very good or excellent under NSF's competitive merit review process. Directs the National Science Board to conduct a review of the program.

- Requires NSF, in evaluating research proposals under their broader impacts criterion, to give special consideration to proposals that involve partnerships between academic researchers, industrial scientists, and engineers that address research areas that have been identified as having high importance for future national economic competitiveness, such as nanotechnology.

- Increases to three (up from one), the number of awards that may be given by NSF through the Alan T. Waterman Award program, which gives an award for research or advanced study in the mathematical, physical, medical, biological, engineering, behavioral, social, or other sciences. The award is a "suitable medal and a grant to support further research or study by the recipient."

- Directs NSF to enter into an arrangement with the National Academy of Sciences for a report to Congress, about barriers to increasing the number of underrepresented minorities in science, technology, engineering, and math fields, and to identify strategies for bringing more underrepresented minorities into the science, technology, engineering, and math workforce.

- **Authorizes at least $1.6 billion** over three years (FY08-FY10) for the Department of Commerce for scientific and technical research and services of laboratory activities through NIST.

- **Authorizes $287 million** over three years (FY08-FY10) for the Secretary of Commerce for NIST construction and maintenance.

- **Authorizes $735.8 million** over three years (FY08-FY10) for Industrial Technology Services activities though NIST, of which:
    - $372 million is for the Technology Innovation Program established by this Act, of which $120 million is for **new grant awards**; and
    - $403.8 million is for the Manufacturing Extension Partnership program, of which $9 million is for a **new grant program** established by this Act.

- Requires NIST **to establish a new grant program** within MEP to give grants to Manufacturing Extension Centers to develop projects to solve new or emerging manufacturing problems as determined by NIST and other entities, and related to supply chain integration and quality management, technological needs of manufacturers, and available technologies from institutions of higher education, laboratories, and other technology-producing entities.

- **Establishes a new program** at NIST, the Technology Innovation Program (TIP), which would assist small and medium-sized U.S. businesses, institutions of higher education (IHE), and other organizations such as national laboratories, to support, promote, and accelerate innovation in the United States through high-risk, high-reward research in areas of critical need, and establish that large companies may not receive any TIP funding. Grants made to businesses under the program could not exceed $3 million over three years, and the federal share of a project funded by the grant could not be more than 50% of total project costs. Grants made to "joint ventures" (defined in the bill) under the program, could not exceed $9 million over five years, and the federal share could not exceed 50% of the total cost.

- Requires NIST to continue to use the new Technology Innovation Program to provide support originally awarded under the Advanced Technology Program (ATP), which is repealed by this bill.

- Requires NIST **to create a new pilot program** to provide grants to partnerships to "foster cost-shared collaborations among firms, education institutions, research institutions, state agencies, and nonprofit organizations to encourage the development of innovative, multi-disciplinary manufacturing technologies." The grants would be used to "conduct applied research to develop new manufacturing processes, techniques, or materials that would contribute to improved performance, productivity, and competitiveness of U.S. manufacturing, and build lasting alliances among collaborators." These partnerships would include at least one manufacturing industry partner and one non-industry partner.

- Directs NIST **to establish a new program** to give stipends to postdoctoral research fellowships at NIST for research activities related to manufacturing sciences and to senior research fellowships to establish researchers in industry or at IHEs who want to pursue studies related to the manufacturing sciences at NIST. The purpose of the program is to "promote the development of a robust research community working at the leading edge of manufacturing sciences."

- Increases to 18 (up from 10), the number of annual awards that can be granted under the Malcolm Baldrige National Quality Award Program.

- Amends the National High-Performance Computing Program, which is an interagency coordination program run by the Office of Science and Technology Policy. Specifically, H.R. 2272 would change program's existing purpose and goals, as well as its activities as defined under current law. The program would now have an emphasis in federal high-performance computing research, development, and networking.

- Directs the President to establish an advisory committee on high-performance computing consisting of non-federal members, including representatives of the

research, education, and library communities, network providers, and industry, who are specially qualified to provide the Director with advice and information on high-performance computing. The advisory committee is to report to the Director with an assessment of progress being made in the program and any recommendations for needed improvements.

CBO reports that about **$1.9 billion was appropriated in FY2005 for nondefense research and development on high-performance computing** across six federal agencies. High-performance computers are defined to include supercomputer systems; high-capacity and highspeed networks; special purpose and experimental systems, applications, and systems software; and the management of large data sets.

H.R. 2272 creates a significant number (at least 20) of new programs that were *not* included in the House-passed version. Some of these new programs and additional provisions not included in the House-passed version, are listed below:

- Authorizes $1 million in FY 2008 for the Director of the Office of Science and Technology Policy to conduct a study on the potential barriers to innovation.

- Amends the National Institute of Standards and Technology Act to clarify that a MEP Center that receives federal aid must pay at least 50% of the costs incurred in operating the Center with funding from non-federal sources for the first 3 years and an increasing percentage for the last three years in which the Center is receiving federal aid.

- Establishes a new ocean and atmospheric research and development program to focus on the development of advanced technologies and analytical methods that will promote United States leadership in ocean and atmospheric science and competitiveness.

- Creates a new science, engineering, and mathematics education fund, using no less than 0.3 percent of the funds made available to the Department of Energy for research, development, demonstration, and commercial application.

- Authorizes $66.5 million in FY 2008 – FY 2010 for the creation of a new pilot program to fund grants to specialty schools to expand science and mathematics programs.

- Authorizes $22.5 million in FY 2008 – FY 2010 for an outreach and experiential-based program for minority students, including Hispanic-serving institutions, historically Black colleges and universities, tribally controlled colleges and universities, Alaska Native- and Native Hawaiian-serving institutions.

- Authorizes $139.5 million in FY 2008 – FY 2010 to the Secretary of the Department of Energy to create a program of grants to institutions of higher

education to create or expand research and educational programs in nuclear science.

- Directs the Secretary of the Department of Energy to establish a new Center of Excellence in Science, Technology, Engineering, and Mathematics at each of the National Laboratories.

- Authorizes $60 million in FY 2008 – FY 2010 for Summer Institute Programs to provide additional training to strengthen science, technology, engineering, and mathematics teaching skills of teachers employed at public schools.

- Authorizes $19.5 million for FY 2008 – FY 2010 to establish a new program to expand and enhance institution of higher education nuclear science educational capabilities.

- Authorizes $16.5 million for FY 2008 – FY 2010 to establish nuclear science competitiveness grants for institutions of higher education.

- Authorizes $75 million for FY 2008 – FY 2010 to fund the Director of the Office of Science of the Department of Energy Early Career Awards for Science, Engineering, and Mathematics Researchers. In addition, it directs the Director to submit a report to Congress a report describing efforts of the Director to recruit and retain young scientists and engineers at the early career stages at the National Laboratories.

- Authorizes $39.5 million for FY 2008 – FY 2010 to establish a graduate fellowship program for eligible students pursuing a doctoral degree in a mission area of the Department of Energy (Protecting America' Competitive Edge (PACE) Graduate Fellowship Program).

- Authorizes $65 million for FY 2008 – FY 2010 to establish a Distinguished Scientist Program to promote scientific and academic excellence through the collaboration of higher education institutions and National Laboratories.

- Authorizes $300 million in FY 2008 to establish the Advanced Research Projects Agency, a new agency within the Department of Energy.

- Authorizes $276.2 million in FY 2008 for new programs for Master's Degrees in Science, Technology, Engineering, Mathematics, or Critical Foreign Language Education.

- Authorizes $95 million for FY 2008 for the Secretary to award competitive grants for no more than 5 years for Math Skills for Secondary School Students programs which seek to assist State and local educational agencies and improve the instruction of mathematics programs.

- Authorizes $120 million for FY 2008 to award competitive grants to States to promote elementary and secondary education with the skills needed to succeed in "academic credit-bearing coursework in institutions of higher education."

- Contains a provision requiring the National Science Board to evaluate and report to Congress on the impact of its ruling to eliminate all cost-sharing for NSF's awards as it affects programs that involve industry partnerships. Historically, NSF awards have required industry cost sharing.

Possible Conservative Concerns: Some conservatives may be concerned that this bill authorizes $43.3 billion over three years and creates at least 40 new programs. In addition, some conservatives may be concerned that these new programs are duplicative of current federal efforts. An October 2005 Government Accountability Office (GAO) study reported that in FY04, 13 federal agencies reported spending roughly $2.8 billion on 207 different education programs directly related to science, technology, engineering and mathematics (STEM).

Committee Action: H.R. 2272 was introduced on May 10, 2007, and referred to the House Committee on Science and Technology, which took no official action. The bill was passed by the House on May 21, 2007, by a voice vote.

Cost to Taxpayers: There is no CBO estimate available for the H.R. 2272 Conference Report.

Does the Bill Expand the Size and Scope of the Federal Government?: Yes. The bill creates at least 40 new federal programs.

Compliance with House Earmark Rules: As of press time, the Joint Explanatory Statement did not include a statement on earmarks in the bill.

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